

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Docket No. 11399

Application of:

SMYTH, M. et al.

Group Art Unit: 3624

Serial No. 10/735,483

Examiner: FLEISCHER, MARK A.

Filed: December 12, 2003

For: **METHODS AND SYSTEMS FOR TUNING SEASONAL DEMAND FORECASTS FOR PRODUCTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**BRIEF ON APPEAL**

Sir:

This is an Appeal Brief in furtherance of the Notice of Appeal filed on November 20, 2008 and the Notice of Panel Decision from Pre-Appeal Brief Review dated February 26, 2009. In light of this Brief, Applicant asks the Board of Patent Appeals and Interferences to reconsider this application.

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**CERTIFICATION OF MAILING UNDER 37 CFR 1.8**

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By: \_\_\_\_\_  
Name: \_\_\_\_\_

**(I) REAL PARTY IN INTEREST**

The present application is assigned to Teradata US, Incorporated.

**(II) RELATED APPEALS AND INTERFERENCES**

There are currently no known active appeals or interferences related to the present application.

**(III) STATUS OF CLAIMS**

The above-identified patent application was filed on December 12, 2003 with original claims 1 through 6. Claims 1, 3, 4, and 6 were amended in a response filed on February 29, 2008. Claims 1 through 6 were finally rejected in an Official Action dated June 18, 2008. The final rejection of claims 1 through 6 is being appealed.

Copies of the claims in their current form are provided in the Claims Appendix (section VIII) of this Appeal Brief.

**(IV) STATUS OF AMENDMENTS**

The U.S. Patent and Trademark Office issued a Final Official Action in the prosecution of the present application on June 18, 2008. In response to this Action, Applicant filed a Notice of Appeal and Pre-Appeal Brief Request for Review on November 20, 2008. A Notice of Panel Decision from Pre-Appeal Brief Review was issued by the U.S. Patent and Trademark Office on February 26, 2009. The Panel Decision instructed the Applicant to proceed to the Board of Patent Appeals and Interferences to continue prosecution of the present application.

**(V) SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 1

Claim 1 recites a computer-implemented method for forecasting product demand for a plurality of products, said method comprising the steps of:

storing within an electronic data warehouse historical weekly sales data for said plurality of products (*see, e.g.*, Application, pg. 7, lines 24 through 27);

storing within a computer storage device a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models (*see, e.g.*, Application, pg. 7, line 24, through pg. 8, line 4; Application, pg. 3, lines 1 through 3; Figure 1, Seasonal Profile 113), and computer readable program code (*see, e.g.*, Application, pg. 9, line 24, through pg. 12, line 2; Figure 5, APT batch process); and

providing said computer readable program code to a processor to perform the steps of:

comparing historical weekly sales data for one of said plurality of products obtained from said data warehouse with each one of said seasonal models stored within said computer storage device (*see, e.g.*, Application, pg. 11, lines 12 through 18; Figure 5, step 517);

for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance (*see, e.g.*, Application, pg. 11, lines 12 through 18; Figure 5, step 517); and

associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith (*see, e.g.*, Application, pg. 11, line 19 through pg. 12, line 2; Figure 5, steps 519, 527, 529).

Claim 4

Claim 4 recites a system for forecasting product demand for a plurality of products comprising

an electronic database of historical weekly demand data for a plurality of products (*see, e.g.*, Application, pg. 7, lines 24 through 27; Figure 1, Teradata Data Warehouse 103);

a computer storage device including a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models (*see, e.g.*, Application, pg. 7, line 24, through pg. 8, line 4; Figure 1, Teradata Data Warehouse 103); and

computer processing means (*see, e.g.*, Application, pg. 2, lines 16 through 20; Figure 1, Teradata data warehouse solution) for comparing historical weekly sales data for one of said plurality of products with each one of said seasonal models (*see, e.g.*, Application, pg. 11, lines 12 through 18; Figure 5, step 517); for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance (*see, e.g.*, Application, pg. 11, lines 12 through 18; Figure 5, step 517); and associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith (*see, e.g.*, Application, pg. 11, line 19 through pg. 12, line 2; Figure 5, steps 519, 527, 529).

**(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

Pursuant to the June 18, 2008 Final Office Action, claims 1 through 6 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nau, “Time Series Forecasting in Statgraphics”, 2002 (hereinafter referred to as Nau), in view of D. Bunn and A. Vassilopoulos, “Comparison of seasonal estimation methods in

multi-item short-term forecasting”, 1999, Elsevier, International Journal of Forecasting, Vol. 15; pages 431-443 (hereinafter referred to as Bunn).

The final rejection of claims 1 through 6 under 35 U.S.C. §103(a) as being unpatentable over Nau in view of Bunn is being appealed.

## **(VII) ARGUMENT**

### Rejection of claims under 35 U.S.C. §103(a)

The rejection of claims 1 through 6 under 35 U.S.C. §103(a) as being unpatentable over Nau in view of Bunn is respectfully traversed. To establish a *prima facie* case of obviousness, at least the following requirements must be met:

(1) the references when combined must teach or suggest all elements of the claimed subject matter; (2) there must be some motivation, suggestion or teaching to combine the references; and (3) there must be, within the references, a reasonable expectation of success. *See* M.P.E.P. §2143 (8<sup>th</sup> ed., Rev. 2), at 2100-129. The Office has not established a *prima facie* case of obviousness because these requirements have not been satisfied. Neither Nau nor Bunn, taken singularly or in combination, teach or suggest all of the limitations recited in any one of claims 1 through 6 of the present application.

In the rejection of claim 1 of the present application, Nau was cited as teaching computer implemented methods and associated program code for forecasting product demand with seasonality effects, including the limitations:

comparing historical weekly sales data for one of said plurality of products obtained from said data warehouse with each one of said seasonal models stored within said computer storage device;

for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance; and

associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith.

Bunn was cited as teaching the limitations:

storing within an electronic data warehouse historical weekly sales data for said plurality of products;

storing within a computer storage device a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models, and computer readable program code; and

Applicant respectfully disagrees with the teaching attributed to Nau in the June 18, 2008 Final Office Action. It is not seen that Nau teaches the steps of “comparing historical weekly sales data for one of said plurality of products obtained from said data warehouse with each one of said seasonal models stored within said computer storage device;” “for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance;” and “associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith.”

The Statgraphics system described in Nau can be used to analyze time-series data and compare the series data to multiple statistical forecasting models, such as a Linear Trend model, a Random Walk model, Exponential Smoothing models, and ARIMA (autoregressive integrated moving average) models. However, the forecasting models utilized within the Statgraphics application are not equivalent to the seasonal profiles or models generated by the Teradata DCM application as described in the specification and recited in the claims of the present

application. The seasonal profiles described in the specification and recited in the claims of the present application each represent a seasonal selling pattern for a product or group of products calculated specifically for the product or group of products from historical sales data. The forecasting models utilized within the Statgraphics application are mathematical or statistical models which are not calculated from product sales data.

As stated above, Nau does not teach or suggest a process for “comparing historical weekly sales data for one of said plurality of products obtained from said data warehouse with each one of said seasonal models stored within said computer storage device;” “for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance;” and “associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith.” These limitations are also not taught or suggested by Bunn, which was cited only as teaching the limitations “storing within an electronic data warehouse historical weekly sales data for said plurality of products” and “storing within a computer storage device a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models, and computer readable program code.”

It is also not seen how the limitations of Bunn can be incorporated into the Statgraphics system described in Nau. As stated above, the Statgraphics system described in Nau can be used to analyze time-series data and compare the series data to multiple statistical forecasting models, such as a Linear Trend model, a Random Walk model, Exponential Smoothing models, and ARIMA (autoregressive integrated moving average) models. The forecasting models utilized within the Statgraphics application are mathematical or statistical models which are not calculated from product sales data. Some of these statistical models

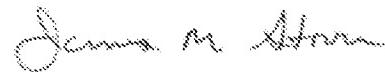
permit seasonal adjustment or seasonal differencing. It is not possible to replace these statistical forecasting models used by the Statgraphics system with the composite seasonal indices, or any other seasonal components, described in Bunn. The seasonal indices and other seasonal components described in Bunn are not equivalent to the statistical forecasting models used within the Statgraphics system, only some of which permit seasonal adjustment or seasonal differencing.

It is accordingly believed that independent claim 1, and claims 2 and 3 which depend from claim 1, each recite an invention which is patentable over the cited references.

Independent claim 4 includes limitations corresponding to those identified above in the discussion of the rejection of claim 1. For the reasons provided above, it is also believed that independent claim 4, and claims 5 and 6 which depend from claim 4, each recite an invention which is patentable over the cited references.

In view of the foregoing remarks, it is believed that the application including claims 1 through 6, is in condition for allowance. Early and favorable action is respectfully requested.

Respectfully submitted,



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### (VIII) CLAIMS APPENDIX

1. A computer-implemented method for forecasting product demand for a plurality of products, said method comprising the steps of:

storing within an electronic data warehouse historical weekly sales data for said plurality of products;

storing within a computer storage device a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models, and computer readable program code; and

providing said computer readable program code to a processor to perform the steps of:

comparing historical weekly sales data for one of said plurality of products obtained from said data warehouse with each one of said seasonal models stored within said computer storage device;

for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance; and

associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith.

2. The method for forecasting product demand for a plurality of products in accordance with claim 1, wherein:

each one of said seasonal models comprises a series of weekly product group seasonal factors, each one of said weekly product group seasonal factors representing a ratio between:

a total historical sales volume for all products in the group of products represented by said one of said seasonal models during a one week period; and

an average weekly sales volume for all products in the group of products represented by said one of said seasonal models, said average weekly sales volume being determined over a period of fifty-two consecutive weeks.

3. The method for forecasting product demand for a plurality of products in accordance with claim 2, wherein said step of comparing the historical weekly sales data for one of said plurality of products with each one of said seasonal models includes the steps of:

calculating a series of weekly product seasonal factors for said one of said plurality of products, each one of said weekly product seasonal factors representing a ratio between:

a historical sales volume for said one of said plurality of products during a one week period; and

an average weekly sales volume for said one of said plurality of products determined over a period of at least fifty-two consecutive weeks; and

comparing said weekly product seasonal factors for said one of said plurality of products with the weekly product group seasonal factors for said seasonal models for corresponding weeks.

4. A system for forecasting product demand for a plurality of products comprising

an electronic database of historical weekly demand data for a plurality of products;

a computer storage device including a plurality of seasonal models, each one of said seasonal models modeling an annual sales pattern for a group of products associated with said one of said seasonal models; and

computer processing means for comparing the historical weekly sales data for one of said plurality of products with each one of said seasonal models; for each comparison between the historical weekly sales data for said one of said plurality of products and one of said seasonal models, calculating a variance; and associating said one of said plurality of products with the seasonal model having the smallest variance associated therewith.

5. The system for forecasting product demand for a plurality of products in accordance with claim 4, wherein:

each one of said seasonal models comprises a series of weekly product group seasonal factors, each one of said weekly product group seasonal factors representing a ratio between:

a total historical sales volume for all products in the group of products represented by said one of said seasonal models during a one week period; and

an average weekly sales volume for all products in the group of products represented by said one of said seasonal models, said average weekly sales volume being determined over a period of fifty-two consecutive weeks.

6. The system for forecasting product demand for a plurality of products in accordance with claim 5, wherein said processor means for comparing the historical weekly sales data for one of said plurality of products with each one of said seasonal models performs the steps of:

calculating a series of weekly product seasonal factors for said one of said plurality of products, each one of said weekly product seasonal factors representing a ratio between:

a historical sales volume for said one of said plurality of products during a one week period; and

an average weekly sales volume for said one of said plurality of products determined over a period of at least fifty-two consecutive weeks; and

comparing said weekly product seasonal factors for said one of said plurality of products with the weekly product group seasonal factors for said seasonal models for corresponding weeks.

**(IX) EVIDENCE APPENDIX**

Not applicable

**(X) RELATED PROCEEDINGS APPENDIX**

Not applicable